MASS
1990

INTRODUCTION

Fiscal year 1990 proved to be a very productive and progressive year for the Bureau of Shade Tree Management and Pest Control. Bureau Tree Crews were in constant demand doing tree planting, tree removals, hazardous tree pruning and maintenance, stump grinding and emergency storm clean-up in the Department's Forest and Park facilities statewide.

Bureau personnel continue to monitor and survey the state for insect and disease outbreaks, keeping Tree Wardens, public officials, and the general public informed of current pest problems. The Bureau is also involved in various research projects cooperating with the U.S. Forest Service, the University of Massachusetts and other Northeast area states.

The U.S. Forest Service initiated a new program called "Forest Health Monitoring". This program will involve intensive data collection by Bureau Staff in Forest plots statewide.

Bureau personnel have achieved great strides in promoting and implementing the Mass. ReLEAF program, Tree City USA and Arbor Day programs.

Additional accomplishments and endeavors of the Bureau are fully explained in the following report.

Personnel

Pete Porrazzo retired as District Supervisor of the Bureau of Shade Tree Management and Pest Control after 38 years in the Department. Pete began working in the Department as a Conservation Helper, then went on to be a Tree Climber, Tree Crew Foreman and District Supervisor serving Middlesex and Essex Counties.

Due to budget constraints the Bureau was unable to replace Mr. Porrazzo in District 4 causing a void in that position.

INSECT/PEST ACTIVITIES

Gypsy Moth

Defoliation from Gypsy Moth for the Commonwealth of Massachusetts dramatically increased this year compared to last years figures of 6,618. An aerial survey conducted in July of 1990 revealed pockets of defoliation throughout the state totaling 83,595 acres. The worst defoliation occurred in Hamden, Hampshire, Franklin, Worcester and Bristol Counties.

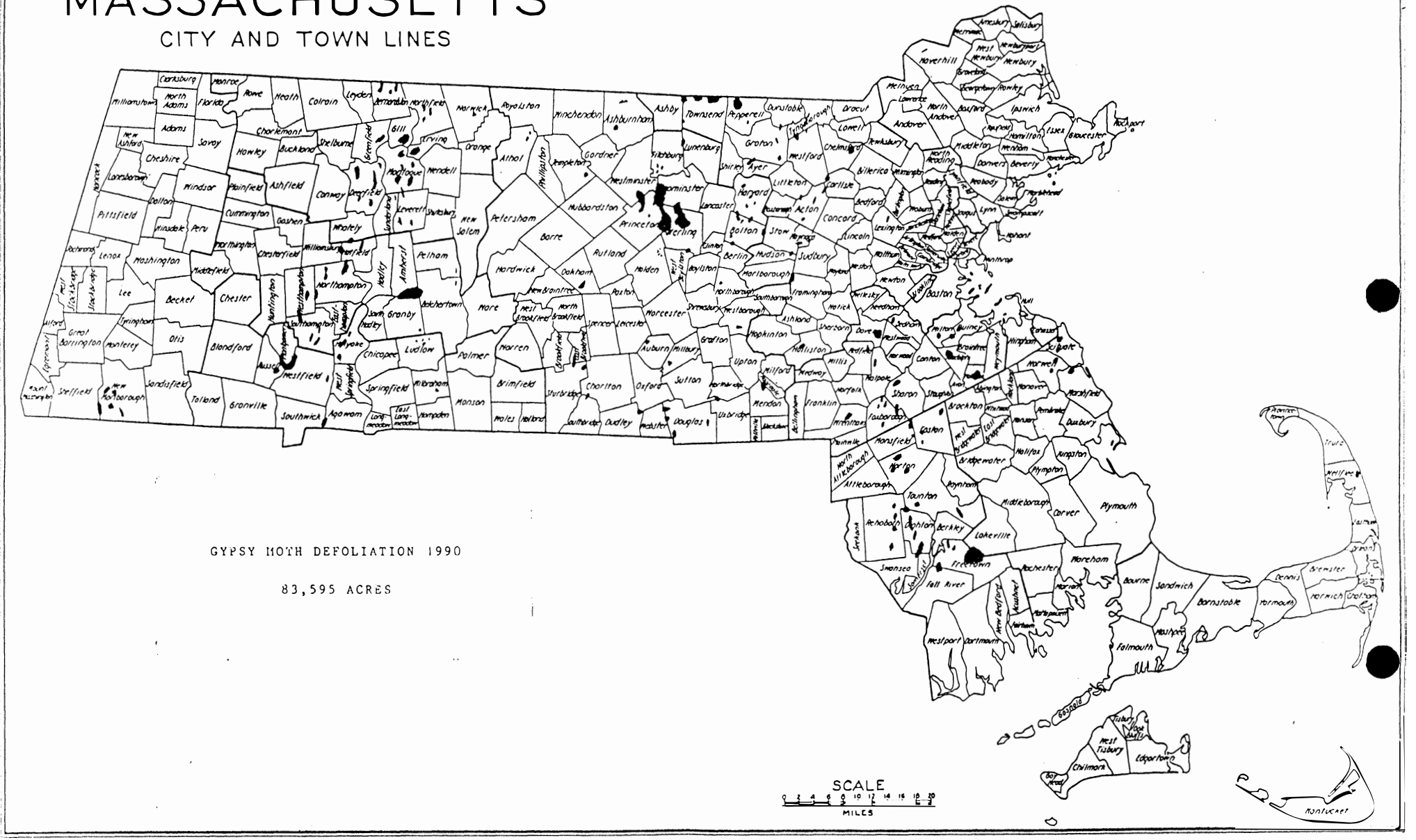
The fungus Entomophaga caused significant caterpillar mortality in all areas where gypsy moth activity occurred. Despite this there was an increase in egg mass counts in all the infested areas with the exception of Southern Worcester county. All indications point to a greater possibility that there will be an increase in visible defoliation by Gypsy Moth in 1991.

Pear Thrips

Pear Thrips, Taeniothrips inconsequens which caused serious defoliation of sugar maples in the Northeast in 1988, were present in large numbers in Berkshire, Hamden, Hampshire and Franklin Counties. As was the case last year little damage occurred from this pest. It appears the timing of insect emergence and bud development is the key factor as to how much damage pear thrips will cause. The most severe damage occurs when trees are in the bud state. It appears that Pear Thrips will continue to be a threat to sugar maples in future seasons.

MASSACHUSETTS

CITY AND TOWN LINES


Clarksburg
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Pepperell
Dunstable
Tyngsborough
Dracut
Lowell
Methuen
Lawrence
North Andover
Andover
Haverhill
Amesbury
Salisbury
Merrimac
West Newbury
Newbury
Groveland
Georgetown
Rowley
Boxford
Ipswich
Essex
Gloucester
Rockport
Hamilton
Wenham
Manchester
Beverly
Danvers
North Reading
Wilmington
Billerica
Tewksbury
Chelmsford
Westford
Groton
Shirley
Ayer
Harvard
Littleton
Carlisle
Bedford
Concord
Acton
Boxborough
Stow
Maynard
Sudbury
Hudson
Berlin
Bolton
Lancaster
Sterling
Princeton
Westminster
Gardner
Templeton
Phillipston
Winchendon
Ashburnham
Ashby
Townsend
Lunenburg
Fitchburg
Leominster
Hubbardston
Barre
Petersham
New Salem
Orange
Athol
Erving
Wendell
Montague
Gill
Greenfield
Shelburne
Buckland
Charlemont
Hawley
Heath
Rowe
Florida
Monroe
Clarksburg
North Adams
Adams
Savoy
New Ashford
Cheshire
Lanesborough
Windsor
Plainfield
Ashfield
Conway
Deerfield
Whately
Sunderland
Leverett
Shutesbury
Pittsfield
Dalton
Hinsdale
Peru
Cummington
Goshen
Williamsburg
Northampton
Easthampton
Southampton
Westhampton
Chesterfield
Worthington
Middlefield
Becket
Washington
Lenox
Richmond
Pittsfield
Lee
Chester
Huntington
Blandford
Otis
Tolland
Granville
Southwick
Agawam
West Springfield
Springfield
Longmeadow
East Longmeadow
Hampden
Wilbraham
Monson
Palmer
Warren
Brimfield
Holland
Sturbridge
Southbridge
Charlton
Oxford
Dudley
Webster
Douglas
Sutton
Auburn
Millbury
Grafton
Upton
Hopkinton
Holliston
Medway
Millis
Norfolk
Franklin
Wrentham
Plainville
Norton
Mansfield
Easton
Foxborough
Sharon
Stoughton
Canton
Milford
Bellingham
Mendon
Blackstone
Uxbridge
Northbridge
Grafton
Shrewsbury
Westborough
Ashland
Framingham
Natick
Wellesley
Needham
Dedham
Westwood
Norwood
Walpole
Medfield
Dover
Sherborn
Hopedale
Milford
Hartford
Holden
Rutland
Oakham
New Braintree
Barre
Hardwick
Ware
Palmer
Monson
Brimfield
Holland
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Sturbridge
Southbridge
Dudley
Webster
Douglas
Uxbridge
Worcester
West Boylston
Boylston
Northborough
Southborough
Marlborough
Hudson
Sudbury
Wayland
Weston
Newton
Waltham
Watertown
Belmont
Arlington
Lexington
Bedford
Burlington
Woburn
Winchester
Medford
Somerville
Cambridge
Boston
Brookline
Dedham
Westwood
Norwood
Canton
Milton
Quincy
Braintree
Weymouth
Hingham
Cohasset
Scituate
Marshfield
Pembroke
Duxbury
Hanover
Norwell
Hingham
Hull
Boston
Revere
Winthrop
Chelsea
Everett
Malden
Melrose
Stoneham
Wakefield
Reading
North Andover
Andover
Lawrence
Methuen
Salem
Peabody
Lynn
Saugus
Lynnfield
Middleton
Topsfield
Boxford
Rockport
Gloucester
Essex
Ipswich
Hamilton
Wenham
Manchester
Beverly
Danvers
North Reading
Wilmington
Billerica
Tewksbury
Chelmsford
Westford
Groton
Shirley
Ayer
Harvard
Littleton
Carlisle
Bedford
Concord
Acton
Boxborough
Stow
Maynard
Sudbury
Hudson
Berlin
Bolton
Lancaster
Sterling
Princeton
Westminster
Gardner
Templeton
Phillipston
Winchendon
Ashburnham
Ashby
Townsend
Lunenburg
Fitchburg
Leominster
Hubbardston
Barre
Petersham
New Salem
Orange
Athol
Erving
Wendell
Montague
Gill
Greenfield
Shelburne
Buckland
Charlemont
Hawley
Heath
Rowe
Florida
Monroe
Clarksburg
North Adams
Adams
Savoy
New Ashford
Cheshire
Lanesborough
Windsor
Plainfield
Ashfield
Conway
Deerfield
Whately
Sunderland
Leverett
Shutesbury
Pittsfield
Dalton
Hinsdale
Peru
Cummington
Goshen
Williamsburg
Northampton
Easthampton
Southampton
Westhampton
Chesterfield
Worthington
Middlefield
Becket
Washington
Lenox
Richmond
Pittsfield
Lee
Chester
Huntington
Blandford
Otis
Tolland
Granville
Southwick
Agawam
West Springfield
Springfield
Longmeadow
East Longmeadow
Hampden
Wilbraham
Monson
Palmer
Warren
Brimfield
Holland
Wales
Sturbridge
Southbridge

HEMLOCK WOOLY ADELGID

Hemlock Wooly Adelgid (Adelges Tsugae), which was first discovered in Massachusetts last year in the forest park area of Springfield, was identified on hemlock trees in Waltham by a U-Mass entomologist. There appears to be no spread of the infestation of this pest in the Springfield area. However this insect is very difficult to survey and there is a possibility of its unknown presence in other areas of the state. Hemlock trees will require continuous monitoring to determine the prevalence of Hemlock Wooly Adelgid in the State.

CHERRY SCALLOOP SHELL MOTH

The cherry scalloop shell moth, calocalpe undulata, occurs on wild and choke cherries throughout much of eastern north america. The caterpillars live in nests which they construct by webbing together the leaves toward the end of a branch.

Rather sudden increases of these insects have caused noticeable defoliation in Worcester County and north Berkshire County a heavy infestation was reported on the M.D.C. ware river watershed property. The majority of the infestations were localized but heavy on individual cherry trees. The unusual onslaught of this.

OAK LEAF TIER - OAK LEAF ROLLER COMPLEX.

Oak Leaf tier (croesia semipurpurana) and oak leaf roller (Archips semiferanus) have been observed feeding in concert in Bristol, Norfolk, and Franklin counties. A small outbreak of these insects have been occurring in the Auburn-Oxford-Grafton area of Worcester County for the past three years with limited damage to oak stands and no apparent acceleration of tree mortality to date. Most defoliation from these insects ranging from light to moderate on individual trees and stands of trees occurred in Bristol and Norfolk counties. Oak leaf Tier populations have fallen below the level of noticeable defoliation in the Warwick area of Franklin County.

FALL CANKERWORM

The Fall Cankerworm, Aslophila pametaria, often called "inchworms" is a defoliator of various hardwood trees. This insect feeds by skeletonizing the leaves of hosts causing severe aesthetic damage to ornamental and shade trees.

After causing significant defoliation in 1989 with approximately 2,000 acres affected in Falmouth, Scituate, and Nantucket, the 1990 aerial survey shows a reduction to 800 acres spreading north from the original infestation in Falmouth.

EASTERN TENT CATERPILLAR

Eastern Tent Caterpillar (Malacosoma americanum) was noticeable present in Berkshire and Middlesex counties this year. This pest occurs sparsely statewide feeding on the foliage of various hardwood trees. The caterpillar prefer fruit trees such as

Wild Cherry, Apple, Crabapple, and others that are commonly used as ornamental in the landscape. The most KXD impact of this pest is the defoliation and unsightly silken tents that are formed in branch crotches of these ornamental which ruins the tree aesthetic appearance.

OAK SKELETONIZER

The Oak Skeletonizer, (Bucculatix ainsliella) in the caterpillar stage feeds on the surface of oak leaves leaving the veins of the leaves untouched. This insect has two or more generations per year. During the spring and early summer they often go unnoticed. However, second and third generations of this pest in late summer can cause severe damage to oak trees. Trees that sustain repeated attacks are weakened and suffer crown thinning and die-back. Occasional outbreaks of this insect in or around residential areas becomes an annoying public nuisance when the small yellowish-green caterpillars spin down from infested oak trees landing on anyone or anything underneath. Their habit of forming small, white, ribbed cocoons on almost anything including lawn furniture, window screens, etc. is also very annoying. This insect has declined since last year with only slight infestations reported in Essex and Middlesex counties.

BROWN TAIL MOTH

The Brown Tail Moth, (Euproctis chrysorrhoea) continues to be confined on the Cape Cod National Seashore in the towns of Barnstable, Wellfleet, Truro, and Providencetown. It appears this infestation remains stable in this area, the towns of Truro and the Seashore continue their attempt to reduce Brown Tail Moth

populations by hand clipping the winter nests of this pest. These insects feed mostly on bayberry. Not only are they destructive on host plants but they are also considered a health problem since some people suffer severe skin rashes after coming in contact with caterpillar hairs.

NANTUCKET PINE TIP MOTH

The Nantucket Pine Tip Moth, (Rhyacionia frustriana) attacks many species of pine by boring into the branch terminals. This insect prefers pitch, scots and other short needled pines.

This insect occurs annually on Cape Cod in Barnstable and Plymouth counties. They are particularly destructive to young trees causing growth reduction, stem deformities and prolonged stress the often results in subsequent tree mortality. Many younger trees have succumb to this pest.

PINE NEEDLE MINER

The Pine Needle Miner, (Exoteleia pinefoliella) causes severe browing and subsequent defoliation of pine trees. The injury from this pet, which often occurs on trees also infested by the Nantucket pine tip moth, is particularly noticeable along major highways leading to Cape Cod. Heavy defoliation from this insect was reported along Route 3 in Plymouth. Various degrees of defoliation occur annually in Plymouth and Barnstable counties causing much public concern.

FALL WEBWORM

The Fall Webworm, (Hyphantria Cunea) was noticeable prevalent this year throughout Middlesex and Southern Worcester counties. Although this insect is not considered a threat to host trees since

it feeds on the foliage late in the growing season, it often causes public attention due to the unsightoly large webs it creates, particularly in the home landscape.

SADDLED PROMINENT

The Saddled Prominent, (Heterocampa guttivitta) defoliates hardwood trees, preferably beech, birch and maple from late July through early September. Significant damage was noted in large areas in Northern Berkshire and Hampshire counties in late July and early August. However, it appears that the majority of the population of this pest collapsed before any severe defoliation occurred. It is thought that either the same Entomophaga fungus that affected gypsy moth or a similar form of the fungus is responsible for the collapse of these insects. The areas affected by this pest will be monitored closely in 1991.

FOREST AND SHADE TREE DISEASE

All trees that are susceptible to leaf diseases most likely showed symptoms of infection due to the cool wet spring weather and moist growing season.

ANTHRACNOSE

Anthracnose diseases were very prevalent on a variety of susceptible hosts. Anthracnose diseases are caused by several types of fungi which cause spotting, browning and distortion of leaves and in some cases twig and branch dieback. Most american sycamores were completely defoliated this season from anthracnose. Anthracnose on dogwood often results in tree mortality. Other trees affected by anthracnose include oak, maple and ash.

ASH DECLINE/ASH YELLOWS DISEASE

Continues to plague ash trees throughout the state and the Northeast. Ash mortality is very noticeable in urban and rural forests. Several municipalities are losing mature ash shade trees resulting in increased tree removal costs. White ash appears to be more susceptible to the disease. Several factors may cause the decline but recent research has shown that a myco-plasma like organism (MLO) is a primary casual agent for ash decline and subsequent mortality.

SUGAR MAPLE DECLINE

Continues to be monitored throughout Berkshire, Hamnpshire and Franklin counties. This decline complex is the focus of on-going cooperative research between this department, the U.S. Forest Service and the University of Massachusetts. Forest and shade trees are affected, although there is a different combination of stress factors involved.

HORSE CHESTNUT LEAF BLOTCH

Horse Chestnut Leaf Blotch, which is caused by the Fungus Guignardia aesculi, was very noticeable wherever these trees have been planted. This disease caused severe browning of foliage and early leaf drop on horse chestnuts planted as street trees or in the landscape.

PINE TIP BLIGHT

Pine Tip Blight caused by the fungus Pinea diplodia has been prevalent in Marthas Vineyard State Forest for several years and has virtually killed out the majority of red pine in the forest.

Regeneration of other tree and shrub species is starting to occur in this area.

SHADE TREE MANAGEMENT ACTIVITIES

D.E.M. FACILITIES

The Department's forests and park facilities are observed regularly by the Bureau's District supervisor to determine shade tree management needs within those facilities. District Supervisors also respond to the requests for arboricultural services from Park Supervisors which are prioritized in the Regional office. It is our responsibility to make sure the department's forests and park facilities are free of potentially hazardous trees in areas accessible to the public.

During F.Y. 90 the Bureau's tree crews provide arboricultural services at 599 forest and park facilities statewide. These facilities include state forests, state parks, heritage state parks, fire towers regional offices, swimming pools and skating rinks.

A variety of services are provided at these facilities including tree removals, tree pruning, tree planting, poison ivy control, weed control, insect and pest surveys, insect control, hazard tree surveys, utility line clearance, stump removals, vista pruning and site clearance.

ASSISTANCE TO OTHER AGENCIES:

The Bureau's District Supervisors and Tree Crews often receive requests from other state and federal agencies to provide arboricultural services and technical information.

During F.Y. 90 the Bureau provided assistance to the following agencies.

Department of Mental Health

Mass. Dept. of Public Works

Metropolitan District Commission

Belchertown State School, Civil Defense

Mass. State Police

Quinsigamond Community College

Worcester County 4-H Camp

Rutland State Hospital

University of Massachusetts - Amherst

Department of Education

University of Mass. - Lawrence Labs

Northampton State Hospital

North Adams State College

Berkshire Community College

MUNICIPAL ASSISTANCE

Bureau personnel are also responsible for providing technical assistance to municipal Tree Wardens and other public officials. Bureau Chief and District Supervisors often visit cities and towns providing public officials with technical information regarding diagnosing insect and disease problems of forests and shade trees, surveying insect populations, determining pest control strategies, identifying potentially hazardous trees, instruction of proper arboricultural practices, and developing and implementation shade tree inventories and management plans.

Tree crews also provide emergency assistance to the town of Princeton following a severe storm that whipped through northern Worcester County. The storm had tornado like winds that downed many tree and power lines and blocked roads throughout the town. The crew assisted in the storm damage cleanup by clearing town roads so that power lines could be restored and emergency vehicles could pass by.

Bureau personnel also participated in municipal Arbor Day programs, presented Tree City USA awards to qualifying communities and promoted the Mass. ReLEAF Grant Program (see special projects).

EDUCATIONAL PROGRAMS - ATTENDED

Throughout the year Bureau personnel attended and participate in a variety of educational seminars, workshops, conferences, and field related association meetings. It is important for employee career development and professionalism

The Bureau's District Supervisors attended the annual meeting

of the Massachusetts Tree Warden and Foresters' Association February 6-7, 1990. Assistant Bureau Chief Ernest DeRosa has served as program chairman for this conference for the past six years. Bureau Staff also attended the annual meeting of the Tree Warden's Arborists', and Utilities Conference March 13-15, 1990.

Both of these meetings are historical in nature in Massachusetts dating back to the early 1900's. They provide attendees the opportunity to hear the most-up-to-date information in the tree care profession plus the chance to interact with other professional from all aspects of the industry. Other meetings attended by Bureau Staff include: National Gypsy Moth Review, Annapolis, MD; Fourth Urban Forestry Conference, St. Louis, Mo; Pear Thrips Conference, Burlington , Vt; Gypsy Moth Control Materials Program, White River Jet, Vt; Gypsy Moth Research Meeting, Windsor, Ct; Northeast Forest Pest Council Meeting, Albany, N.Y.; New England Forest Health Monitoring Training, Northwoods, N.H.; New England Chapter International Society of Arboriculture. Hazardous Materials Training Seminars; Birch Leaf Miner Survey Training Workshop; Lyme Disease Seminars; Lakes and Ponds Training Seminars; Pesticide Workshops.

EDUCATIONAL PROGRAMS - CONDUCTED

Bureau Chief, Assistant Chief and District Supervisors are also involved in conducting educational programs for Tree Wardens, Public officials, DEM Park Supervisors and Staff, Professional groups and associations, and the general public. During FY 90, the Bureau as a whole conducted 20 educational seminars to approximately 1050 attendees. These programs covered various

topics such as Tree City USA, MA ReLEAF, Chain Saw Safety, Lyme Disease Identification & Prevention, Tree Insects and Disease, Urban and Community Forestry, Proper Tree Care Practices and other Shade Tree Management and Pest Control Activities.

LYME DISEASE

Lyme Disease is a bacterium known as Borrelia Burgdorferi. This disease is carried in the bodies of deer ticks (Ixodes Dammini), which can transmit the disease to humans by biting and attaching to bodily parts. An increase of human cases diagnosed as Lyme Disease in the Northeast has warranted more attention within the Department's Forest and Parks system. A management plan that began in 1987 continues to monitor and control Lyme Disease in two areas where deer ticks appear to be most prevalent, those being Scusset State Beach and Nickerson State Park.

The dispersal of Damminix tubes were effective to the point of reducing the number of ticks collected in the post survey. Other methods being initiated by the Department will be the placement of signs in strategic locations throughout the areas. These signs will define the precautions to be taken to avoid the possibility of contracting Lyme Disease. Handouts with the Departments logo containing similar information are being distributed to campers checking into sites at these locations.

ARBOR DAY PROGRAMS

Arbor Day was held April 28, 1989, with all D.E.M. Arbor Week activities taking place April 15 - April 30, 1989. All Arbor Day activities were coordinated through the Bureau of Shade Tree Management and Pest Control.

STATEWIDE

Arbor Day falls on the last friday in April in Massachusetts, this year being April 27, 1990. Various Arbor Day activities at D.E.M. Forest and Park facilities took place during late April and early May. DEM personnel also participate in several state and municipal Arbor Day events. All Arbor Day activities were coordinated through the Bureau of Shade Tree Management and Pest Control. The Bureau distributed 16,000 fir, spruce and white pine seedlings statewide.

REGIONAL ARBOR DAY PROGRAMS

Region I

*Arbor Day Program Facility - Henry T. Wing School

Date - April 27, 1990

Quantity of Seedling requested - 400

* Arbor Day Program Facility - Heritage Chrisitian School

Date - April 20, 1990

Quantity of Seedling requested - 600

*Arbor Day Program Facility - Otis Air Force Base

Date - April 28, 1990

Quantity of Seedling requested - 150

*Arbor Day Program Facility - Middleboro School System N. District

Date - April 27, 1990

Quantity of Seedling requested - 250 + 500 - 1 Sapling tree

*Arbor Day Program Facility - Nickerson State Park

Date - May 1, 1990

Quantity of Seedlings requested - 175

*Arbor Day Program Facility - Friends Acadamy

Date - April 19, 1990

Quantity of Seedling requested - 65

*Arbor Day Program Facility - Darthmouth Childrens Museum

Date - April 20, 1990

Quantity of Seedling requested - 500 + 1 Sapling Tree

*Arbor Day Program Facility - N. Attleboro Elementary School

Date - April 25, 1989

Quantity of Seedling requested - 100

*Arbor Day Program Facility - Westport Elementary School

Date - April 29, 1989

Quantity of Seedling requested - 107 + 1 Sapling

*Arbor Day Program Facility - Fall River Hertiage S.P.

Date - April 22, 1990

Quantity of Seedling requested - 800

*Arbor Day Program Facility - Borderland State Park

Date - April 27, 1990

Quantity of Seedling requested - 250

*Arbor Day Program Facility - Foxboro State Forest

Date - April 27, 1990

Quantity of Seedling requested - 100

*Arbor Day Program Facility - Stoney Brook Reservation - Norfolk

Date - April 26, 1990

Quantity of Seedling requested - 50

Region II

*Arbor Day Program Facility - Visits to selected schools in district

Date - April 27, 1990

Quantity of Seedling requested - 600 plus

*Arbor Day Program Facility - Halibut Point State Park

Date - April 27, 1990

Quantity of Seedling requested - 200

*Arbor Day Program Facility - Elm School Ashby

Date - April 1990

Quantity of Seedling requested - 400

*Arbor Day Program Facility - Henry Warren School Ashland

Date - April 27, 1990

Quantity of Seedling requested - 400

*Arbor Day Program Facility - Hopkinton Center School K-3

Date - April 26, 1990

Quantity of Seedling requested - 700

*Arbor Day Program Faciity - Shade Tree Mgmt. & Pest Ctrl Stow

Date - April 1990

Quantity of Seedling requested - 50

*Arbor Day Program Facility - Mack Buildin

Date - April 22,23, 1990

Quantity of Seedling requested - 500 + 5 sapling

*Arbor Day Program Facility - Lawrence Heritage State Park

Date - April 27, 1990

Quantity of Seedling requested - 600

*Arbor Day Program Facility - Great Brook Farm State Park

Date - April 20, 1990

Quantity of Seedling requested - 130

*Arbor Day Program Facility - Maudslay State Park

Date - April 28, 1990

Quantity of Seedling requested - 500

*Arbor Day Program Facility - Bradley Palmer

Date - April 27, 1990

Quantity of Seedling requested - 150

*Arbor Day Program Facility - Walden Pond

Date - April 27, 1990

Quantity of Seedling requested - 200

*Arbor Day Program Facility - Cochituate State Park

Date - April 21, 1990

Quantity of Seedlng requested - 500 + 5 Sapling

Region III

*Arbor Day Program Facility - Gardner Hertiage State Park

Date - April 28, 1990

Quantity of Seedling requested - 350

*Arbor Day Program Facility - Worcester Parks Dept., Elm Park

Date - April 28, 1990

Quantity of Seedling requested - 2,000

Region IV

*Arbor Day Program Facility - Belchertown State School

Date - Early May

Quantity of Seedling request - 0 + 1 Sapling

*Arbor Day Program Facility - Elementary School

Date - April 27, 1990

Quantity of Seedling requested - 300 + 1 Sapling

*Arbor Day Program Facility - Hatfield Elementary School

Date - April 27, 1990

Quantity of Seedling requested - 150 + 1 Sapling

*Arbor Day Program Facility - Town of Amherst

Date - April 27, 1990

Quantity of Seedling requested - 86

Region V

*Arbor Day Program Facility - Sheffield Center School

Date - April 27, 1990

Quantity of Seedling requested - 300

*Arbor Day Program Facility - Sturbridge Elementary School

Date - April 27, 1990

Quantity of Seedling requested - 350 + 1 Sapling

*Arbor Day Program Facility - Clarksburg Elementary School

Date - April 27, 1990

Quantity of Seedling requested - 300

SPECIAL PROJECTS

PEAR THRIPS

An attempt is being made thru funding to UMASs by DEM to determine if pear Thrips colonize and reproduce better on trees which are of low vigor. The method for determining a tree vigor is by analyzing the amount of starch reserves stored in the tree roots. Root samples were collected from 7 sites and the results were supplied to UMASS for site and tree selection. Five Sites were selected (New Salem 2, Worthington 1, and Chesterfield 1). At each site cages were placed over the branch tips by the STM&PC crew prior to thrips emergence. At a later date insects were collected and a known number were released within the cages. After the thrips feeding and egg laying was complete the case and branch tips were clipped and returned to UMASS for analyzation and data collection. UMASS is to prepare a report on the results.

GYPSY MOTH MONITORING AND FOCI

In Cooperation with UMASS the 20 Gypsy Moth plots in each district were again checked, burlaps replaced where needed and traps installed. In September the number of pupae and egg masses were counted, the trap retrieved and all data collected was given to Dr. Elkinton of UMASS.

FOCI

It was decided early in 1990 that the attempt to control a Gypsy Moth population in hot spots (foci) would not be attempted. This is a result of the funding to UMASS ending and if a pesticide application was made several more years would be needed to monitor

results, and also because of the problems in getting an aerial applicators was experience in 1988. However the plots are being maintained on Sawmill Hill (Northampton), and on Country and Dry Hill (Wendell) to continue to monitor the insects population. This is being done without assistance from UMASS.

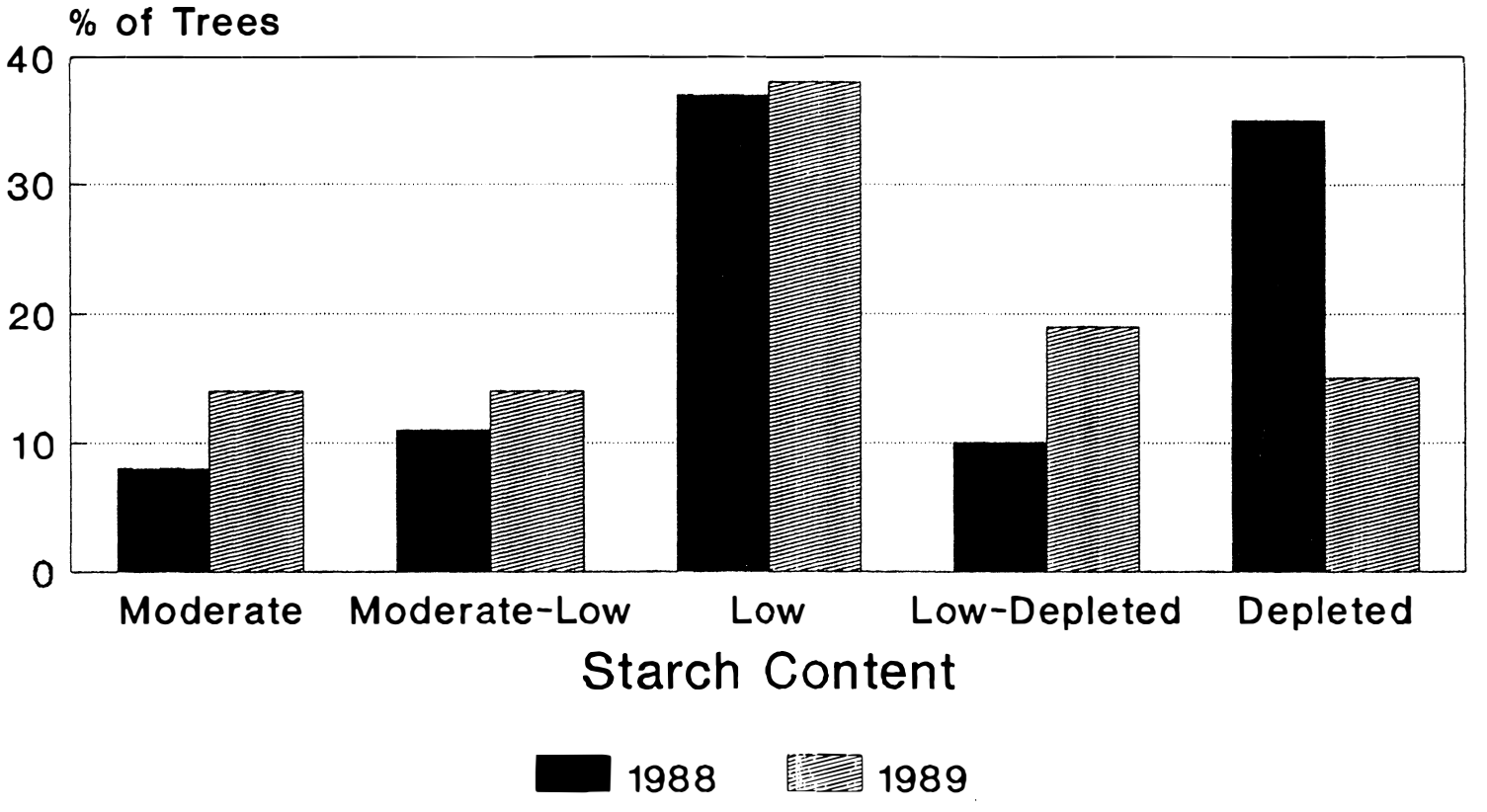
SUGAR MAPLE ROOT STARCH

In 1988 the Sugar Maple stands in Western Massachusetts were severely defoliated by the Pear Thrips. To determine the affects this defoliation on the vigor of the Sugar Maples, root starch data was collected from trees within the North American Sugar Maple Decline Project. The results of this was reported in the FY 89 annual report. Since no defoliation was noted in 1989 it was decided t repeat the process and sample 226 of the same trees. This is slightly less trees than in 1988 but this was done because of time constraints and an increase in workload from other projects. When the results were analyzed it was determined that 42% of the trees had an increase in root starch thus increased vigor while 32% decreased with 26% remaining the same. This would lead to believe that trees which are not stressed by repeated defoliations will start to recover the following season. The attached graph compares the two year results by starch contents. At the present time there are no plans to continue this project in fall of 1990

STARCH CONTENT

Sugar Maple

(Defoliated 1988)



C. Burnham 3/90

results, and also because of the problems in getting an aerial applicators was experience in 1988. However the plots are being maintained on Sawmill Hill (Northampton), and on Country and Dry Hill (Wendell) to continue to monitor the insects population. This is being done without assistance from UMASS.

SUGAR MAPLE ROOT STARCH

In 1988 the Sugar Maple stands in Western Massachusetts were severely defoliated by the Pear Thrips. To determine the affects this defoliation on the vigor of the Sugar Maples, root starch data was collected from trees within the North American Sugar Maple Decline Project. The results of this was reported in the FY 89 annual report. Since no defoliation was noted in 1989 it was decided t repeat the process and sample 226 of the same trees. This is slightly less trees than in 1988 but this was done because of time constraints and an increase in workload from other projects. When the results were analyzed it was determined that 42% of the trees had an increase in root starch thus increased vigor while 32% decreased with 26% remaining the same. This would lead to believe that trees which are not stressed by repeated defoliations will start to recover the following season. The attached graph compares the two year results by starch contents. At the present time there are no plans to continue this project in fall of 1990

FOREST HEALTH MONITORING

Each Bureau Supervisor attended a seminar in New Hampshire for five days on Forest Health monitoring. The program was presented by the US Forest Service in cooperation with the Northeastern States. The program instructed each individual on the use of Forestry related equipment, compass, hand held data processors and computers, aerial photos, plot set ups, tree measuring devices, etc. Upon completion, this information was put to use to set up designated plots across the State to determine the forest health conditions over the next several years.

LYME DISEASE- DAMMINIX TREATMENT

The deployment of Damminix tubes at Scusset Beach State Reservation and Nickerson State Park was carried out again this year. The tubes were put out by Campers and host families and some park personnel at Scusset. At Nickerson the tubes were put out by STM&PC District Supervisor Dick Kelliher, Fire personnel and one host family. I believe this is the last year for this program. Next year more emphasis will be placed on public notification and information regarding precautions to be taken by the user public against the deer tick which spreads Lyme Disease.

BIRCH LEAF MINER SURVEY - U OF MASS

Working with the Entomology Department of University of Mass. Each District Supervisor was instructed to find 20 pots in 5 towns each with the emphasis on gray and white Birch Trees. Each tree was randomly sampled by collecting leaves for each. Visual diagnosis of each leaf was recorded for Birch Leaf Miner. This information was then transferred to the University of

Massachusetts.

YANKEE FOREST COOPERATIVE PROGRAM

District Supervisor Russell Larson continues to be involved with the Insect and Disease Subcommittee of the Yankee Forest Cooperative Project, a Tri-STate Forestry initiative between Massachusetts, Connecticut and Rhode Island., Three aerial surveys were conducted to determine areas of highest mortality in oak stands resulting from repeated Gypsy Moth Defoliation. The Committee designated the highest percent mortality area as the Y.F>C>P> Site Conversion Demonstraton Area. A proposal was submitted to the Management Forester in the Southern Worcester County to initiate a salvage cut and site conversion project.

TREE CITY USA PROGRAM

The Bureau represents our State Forester's Office in the promotion and implementation of the Tree City USA award program which is sponsored by the National Arbor Day Foundation. This award gives national recognition to cities and towns across America that have made special commitment to the planting and care of trees in their communities.

This year seven more communities have been recognized as Tree City USA's in Massachusetts to twenty-seven.

Bureau personnel presented Tree City USA plaques and flags to qualifying communities in conjunction with their local Arbor Day events.

Those Massachusetts communities that received Tree City USA Awards this year are as follows:

Sharon	Year 4	Lynn	Year 1
S. Hadley	Year 4	Natick	Year 6
Danvers	Year 6	Acton	Year 6
Manchester	Year 7	Wayland	Year 4
Springfield	Year 4	Wellesley	Year 7
Reading	Year 5	Framingham	Year 5
Lexington	Year 6	Worcester	Year 5
Belmont	Year 5	Amherst	Year 6
Glouster	Year 3	Easton	Year 2
Hanscom AFB	Year 3	Hingham	Year 2
W. Springfield	Year 4	Cambridge	Year 1
Watertown	Year 1	Plymouth	Year 1
Sturbridge	Year 1	Newton	Year 1
W. Boylston	Year 1		

MASS. ReLEAF

On April 28, 1989, Governor Michael S. Dukakis and Environmental Affairs Secretary John DeVillars announced a new state policy encouraging the planting and care of shade trees as a means of combating global warming, conserving energy and improving the quality of life for the Commonwealth's residents. Dubbed "Mass. ReLEAF", this program solicits donations to pay for the planting of shade trees in the state's cities and towns. The money will be distributed to communities through a competive grant program administered by the Department of Environmental Management. Any community that has a tree warden and a budget for the planting and care for shade trees is eligible.

A Mass. ReLEAF Grant Application was mailed out to every Tree Warden and Mayor (or equivalent) in all 351 cities and towns in the Commonwealth. To our surprise 93 communities responded with grant proposals totaling $568,000. Since the program had just begun there was limited funding that allowed the Bureau to partially fund 25 community tree planting projects.

As more funds become available we are optimistic that a significant amount of trees will get planted in our Massachusetts communities through the Mass. ReLEAF program.

OAK LEAF TIER

In an effort to keep track of this insects populations 15" branch samples were collected from the known area of infrestation. These were examined under a microscope for the presence of insect eggs. The results of this sampling indicates that the insect population has fell below the level of noticeable defoliation. It is questionable if the collapse of this insect's population could have been caused by a species of the Entomophaga fungi which also was proven to effect the Gypsy Moth and Saddle Prominent populations. We will continue to monitor this insect in 1990.

FOURTH URBAN FORESTRY CONFERENCE

The conference was attended by the district supervisor Joseph Lokitis. The 1989 conference was hosted by the City of St. Louis, Missouri. This city was chosen because of its central location, active Urban Forestry program, and ideal conference setting located on the edge of the Arch grounds, a beautiful downtown greenway, and the Mississippi River.

The theme of the conference "Make our Cities Safet for Trees" was chosen because it has been discovered that trees offfer more than just shade, they work to lower health costs, to replace the need for more power plants, to cleanse the urban environment and reduce global warming. All these facts point to the need to make more space for trees and to make our communities safe for trees.

The conference speakers were chosen for their knowledge ona variety of subjects pertinent to urban forestry. The themes of the sessions were "Trees as the Centerpiece of Tomorrow's Cities and Towns", "Social and Psychological Values", "Energy and

Environment", "Making Cities for Trees", and "Making a Place for Trees".

A municipal tour was taken to observe the results of the new planting campaign in St. Louis and also a drive through Forest Park with stops at St. Louis Zoo, Clayton, University City and Anheuser Bush corporate headquarters.

MA.

1990 PEST CONDITIONS REPORT WORKSHEET

PEST (COMMON NAME): Gypsy Moth

(SPECIFIC NAME): Lymantria dispar

HOST: Oak

PRESENT CONDITION:

AREA (TOTAL ACRES): 83,597 Acres

LOCATION: Berkshire, Hampden, Hampshire, Franklin Worcester, and Bristol Counties

SEVERITY (INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION;DEFINE CLASSES):
20,496 acres of moderate defoliation
63,101 acres of heavy defoliation

LOSSES (INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR $ ESTIMATES):

TREND:

PAST TO PRESENT: There was a dramatic increase in 1990. Scattered pockets of moderate to heavy defoliation in the infested counties

FUTURE: Egg mass counts indicate a potential for an increase in defoliation in 1991.

CONTROL PROJECTS (METHOD, MATERIAL, ACRES, COST, RESULTS):

COMMENTS: There was a high degree of mortality from Entomophaga in 1990. It is unknown what effects this will have on future populations.

1990 PEST CONDITIONS REPORT WORKSHEET

PEST (COMMON NAME): Cherry Scallop Shell Moth
(SPECIFIC NAME): Calocalpe undulata

HOST: Pin and Black Cherry

PRESENT CONDITION:

AREA (TOTAL ACRES): 450 Acres

LOCATION: Worcester and Northern Berkshire Counties

SEVERITY (INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION;DEFINE CLASSES):

LOSSES (INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR $ ESTIMATES):

TREND:

PAST TO PRESENT: This is the first time this insect has been reported in nearly 10 years.

FUTURE:

CONTROL PROJECTS (METHOD, MATERIAL, ACRES, COST, RESULTS):

COMMENTS:

1990 PEST CONDITIONS REPORT WORKSHEET

PEST (COMMON NAME): Saddled Prominent
(SPECIFIC NAME): Heterocampa guttaivitta

HOST: Sugar Maple, Beech and Birch

PRESENT CONDITION:

AREA (TOTAL ACRES): 1488 Acres

LOCATION: Berkshire County

SEVERITY (INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION;DEFINE CLASSES):
All 1488 acres were moderate to heavy defoliation

LOSSES (INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR $ ESTIMATES):

TREND:

PAST TO PRESENT: This is the second year the defoliation has been noted.

FUTURE:

CONTROL PROJECTS (METHOD, MATERIAL, ACRES, COST, RESULTS):

COMMENTS: It is unknown what will happen to this population because there was a high degree of mortality caused by a species of Entomophaga.

1990 PEST CONDITIONS REPORT WORKSHEET

PEST (COMMON NAME): Pear Thrips

(SPECIFIC NAME): Taeniothrips inconsequens

HOST: Primary Host is Sugar Maple

PRESENT CONDITION:

AREA (TOTAL ACRES): No damage detected in aerial survey

LOCATION: Berkshire, Hampden, Hampshire, Franklin Counties

SEVERITY (INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION;DEFINE CLASSES):

The insect was present in large numbers throughout the infested area but caused little to no damage.

LOSSES (INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR $ ESTIMATES):

TREND:

PAST TO PRESENT: Caused severe defoliation in 1987 and 1988

FUTURE:

CONTROL PROJECTS (METHOD, MATERIAL, ACRES, COST, RESULTS):

COMMENTS: Damage or noticeable defoliation may depend on the timing of insect emergence and bud development.

1990 PEST CONDITIONS REPORT WORKSHEET

PEST (COMMON NAME): Fall Cankerworm

(SPECIFIC NAME): Alsophila pametaria

HOST: Oak, Cherry, Maple, Birch, Linden, Apple

PRESENT CONDITION:

AREA (TOTAL ACRES): 800

LOCATION: Plymouth, Barnstable, and Nantucket Counties

SEVERITY (INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION;DEFINE CLASSES):

LOSSES (INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR $ ESTIMATES):

TREND:

PAST TO PRESENT: Defoliation reduced from 2,000 acres in 1989 to 800 acres in 1990

FUTURE: Infestation appears to be spreading from original infestation in the Town of Falmouth.

CONTROL PROJECTS (METHOD, MATERIAL, ACRES, COST, RESULTS):

COMMENTS:

1990 PEST CONDITIONS REPORT WORKSHEET

PEST (COMMON NAME): Hemlock Wooly Adelgid
(SPECIFIC NAME):

HOST: Hemlock

PRESENT CONDITION:

AREA (TOTAL ACRES): 3 Acres

LOCATION: Hampden County (Springfield) and
Middlesex County (Waltham)

SEVERITY (INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION;DEFINE CLASSES):
Some trees in the area show a heavy infestation while other nearby hemlocks appear to be unfested.

LOSSES (INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR $ ESTIMATES):
No mortality has been noted

TREND:

PAST TO PRESENT: There is on change in the infestation in Springfield and the Waltham infestation involves only 1 tree.
FUTURE:

CONTROL PROJECTS (METHOD, MATERIAL, ACRES, COST, RESULTS):

COMMENTS: In both cases the infestation is in an ornamental situation.

1990 PEST CONDITIONS REPORT WORKSHEET

PEST (COMMON NAME): Brown Tail Moth
(SPECIFIC NAME): Eproctis chrysorrhoea

HOST: Beach Plum

PRESENT CONDITION:

AREA (TOTAL ACRES):

LOCATION: Cape Cod National Seashore

SEVERITY (INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION;DEFINE CLASSES):
Some mortality in the beach plum from repeated defoliation. The population seems to be stable

LOSSES (INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR $ ESTIMATES):

TREND:

PAST TO PRESENT: Since reported this pest has remained confined to the National Seashore

FUTURE:

CONTROL PROJECTS (METHOD, MATERIAL, ACRES, COST, RESULTS):
The Town of Truro and the Seashore have attempted control by clipping the winter nests.

COMMENTS:

1990 PEST CONDITIONS REPORT WORKSHEET

PEST (COMMON NAME): Oak leaf tier/roller complex
(SPECIFIC NAME): Croesia semipurpurana and Archips semiferanus
HOST: Red Oak

PRESENT CONDITION:

AREA (TOTAL ACRES): 80,000 Acres

LOCATION: Southern Worcester, Norfolk and Bristol Counties

SEVERITY (INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION;DEFINE CLASSES):
All defoliation is less than 30%

LOSSES (INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR $ ESTIMATES):

TREND:

PAST TO PRESENT: For the past 2 years this infestation has remained stable with defoliation limited to less that 30%
FUTURE:

CONTROL PROJECTS (METHOD, MATERIAL, ACRES, COST, RESULTS):

COMMENTS: The infestation in the Warwick area (Franklin County) has fallen below the level of noticeable defoliation.

1990 PEST CONDITIONS REPORT WORKSHEET

PEST (COMMON NAME): Pine Needle Miner
(SPECIFIC NAME): Exoteleia pinefoliella

HOST: Pitch Pine

PRESENT CONDITION:

AREA (TOTAL ACRES): 1213 Acres

LOCATION: Plymouth and Barnstable Counties

SEVERITY (INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION;DEFINE CLASSES):
Heavy defoliation in Plymouth County

LOSSES (INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR $ ESTIMATES):

TREND:

PAST TO PRESENT: Insect has been present in the Plymouth area for several years

FUTURE:

CONTROL PROJECTS (METHOD, MATERIAL, ACRES, COST, RESULTS):

COMMENTS:

1990 PEST CONDITIONS REPORT WORKSHEET

PEST (COMMON NAME): Nantucket Pine Tip Moth
(SPECIFIC NAME): Rhyacionia frustrana

HOST: 2 needle pines

PRESENT CONDITION:

AREA (TOTAL ACRES): 6613 Acres

LOCATION: Barnstable County, Towns of Truro, Wellfleet, and Eastham

SEVERITY (INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION;DEFINE CLASSES):

LOSSES (INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR $ ESTIMATES):

Small Pitch Pine have died in the Truro and Wellfleet area.

TREND:

PAST TO PRESENT: Infestation has been stable over the past several years.

FUTURE:

CONTROL PROJECTS (METHOD, MATERIAL, ACRES, COST, RESULTS):

COMMENTS:

1990 PEST CONDITIONS REPORT WORKSHEET

PEST (COMMON NAME): Fall Webworm
(SPECIFIC NAME): Hyphantria cunea

HOST: Pin and Black Cherry

PRESENT CONDITION:

AREA (TOTAL ACRES): 400 Acres

LOCATION: Middlesex and Southern Worcester Counties

SEVERITY (INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION;DEFINE CLASSES):
A noted population increase was noted for this insect but heavy defoliation was observed in the above counties.

LOSSES (INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR $ ESTIMATES):

TREND:

PAST TO PRESENT: It appears that this is the start of a buildup of this pest.

FUTURE:

CONTROL PROJECTS (METHOD, MATERIAL, ACRES, COST, RESULTS):

COMMENTS:

1990 PEST CONDITIONS REPORT WORKSHEET

PEST (COMMON NAME): Oak Dieback
(SPECIFIC NAME):

HOST:

PRESENT CONDITION:

AREA (TOTAL ACRES): 5465 Acres

LOCATION: Berkshire and Western Franklin and Hampshire Counties

SEVERITY (INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION;DEFINE CLASSES):

LOSSES (INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR $ ESTIMATES):

TREND:

PAST TO PRESENT: This was the first year this was problem was experienced.

FUTURE:

CONTROL PROJECTS (METHOD, MATERIAL, ACRES, COST, RESULTS):

COMMENTS: After consulting with the University of Massachusetts, Shade Tree Lab and Plant Path. Department as well as the USDA Forest Service in both Durham NH and Hampden CT it was determined by Dr. Dave Houston that the problem was a weather related event.